Newsletter of the North American Mycological Association

THE MYCOPHILE

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Scleroderma as an Artist's Medium

by David Kopitzke & Jane Furchgott

Visitors to arts, crafts, and gift stores are familiar with the use of the artist's conk (*Ganoderma applanatum*) as a surface upon which drawings can be made. But are the creative possibilities of other fungi being overlooked? We think that the earthball or pigskin poison puffball (*Scleroderma citrinum*) should also be considered—not as a surface upon which to draw, but as a substance with which to draw.

The novice mycophagist is always shown "look-alikes" to help him or her learn important identifying characteristics of fleshy fungi. While there are some superficial similarities, it would be a careless mushroom hunter indeed who confuses *Scleroderma* (the earthballs) with their look-alikes, *Lycoperdon* and *Calvatia* (the puffballs).

True, they are all spherical, stemless, and often found in soil (also on wood). Although they all have white interiors when they first emerge, soon a difference becomes obvious: When a young *Scleroderma* is sliced in half it will be seen to have a purplish to black firm interior, while the young puffball remains white and tender inside. As it ages, the *Scleroderma* interior turns gray and punky. The interiors of *Calvatia* and *Lycoperdon* turn from a pale yellow-green to olive and brown. The puffballs are never black inside.

"Herman," a drawing by Jane Furchgott using a whittled gleba

Here in southwestern Wisconsin *S. citrinum* (probably synonymous with *S. aurantium*) is found in a variety of mixed oak woods and even in open woodlands near sand prairies. We see them in the Hill's oak barrens along the Wisconsin River and especially in oak woods on dry south-facing slopes, though they occur on other slopes too.

From July through the first frosts of mid-fall is the best time to find this species, which has been found growing on the ground, on rotten wood, and even on mossy rocks! The characteristics of local specimens agree with those in common mushroom guides for eastern North America. The same guides agree that *S. citrinum* is a common mush-

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Collybia dryophila *with* Christiansenia mycetophilia *by David Work won an award in the 2005 NAMA Digital Photo Contest. See pages 8, 9, and 15 for more winners.*

From the Editor:
In this issue of THE MYCOPHILE we've put together a "Mushroom as Art Extravaganza!" And we've covered just about all the arts media: we have mushroom-based photography (of course), literature, music, poetry, sculpture, painting, and dyeing. You may never look at mushrooms in the same way again!

—Britt

PRESIDENT'S MESSAGE

Here in North Carolina we've been suffering from several weeks of drought conditions. finally last week the rains came, and came in abundance. Mushrooms are fruiting everywhere you look and more rain is anticipated along with cool evenings. In other words, "Who has time to write a President's Message?"

Prior to the rains, NAMA held its regional foray at Wildacres on the Blue Ridge Parkway in NC. The foray was in such demand that we had to turn people away even with the dry weather. They fed us well, and the programs and companionship were first rate. Approximately 190 species of fungi were identified (low count for Wildacres but great considering the lack of moisture) with 38 new species never before found at this foray. Thanks to the hard work of Allein Stanley, the foray was a complete success, as always. The NAMA members present at the foray decided to honor Allein for her continuing efforts she puts into the Wildacres foray with a project of her choosing. Participants dug deep into their pockets and contributed generously to see this idea through.

This issue of THE MYCOPHILE focuses on mushrooms in art, or perhaps art in mushrooms. When I was told this, I began looking around my home at various trout-fishing and duck-hunting prints hanging there. Those were my two outdoor passions before being inoculated with fungi. No less than five of these non-mycological prints contain some sort of mushroom. Some are identifiable while others, I believe, came solely from the imagination of the artist. It's interesting to see how prevalent fungi are in art when you begin to notice them—and why not, as I think most of us will agree that a mushroom in itself can certainly be a work of art!

On another note, I'm sure many of you are aware that Orson Miller has undergone some rather serious surgery recently and needs to remain in our thoughts. Orson, we wish you a speedy recovery.

Happy fall hunting! —*Ike*

An array of yarn colored with mushroom dyes shimmers in the sun. Dorothy Beebee's story "Mushroom Dyes in Denmark" starts on page 11.

Moving?

Please send your new address, ***two weeks*** before you move, to

Ann Bornstein
NAMA Membership Secretary
336 Lenox Avenue
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Otherwise—you may not be getting your newsletter for a while. Each issue, several *Mycophiles* are returned as undeliverable because of no forwarding address on file. NAMA is charged ***seventy cents*** for each returned or forwarded newsletter.

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Judith McCandless, Treasurer
330 Wildwood Place
Louisville, KY40206-2523
<judithmc@iglou.com>

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Web site: ***www.namyco.org***

Isaac Forester, NAMA President
P.O. Box 1107
North Wilkesboro, NC 28659-1107
<mycoCPA@aol.com>

Judy Roger, Executive Secretary
6615 Tudor Court
Gladstone, OR 97027-1032
<ExecutiveSec@namyco.org>
<jaroger@comcast.net>

Britt Bunyard, Content Editor
W184 N12633 Fond du Lac Avenue
Germantown, WI 53022
<bbunyard@wi.rr.com>

Judith Caulfield, Production Editor
927 Lansing Drive
Mt. Pleasant, SC 29464
<jpendle@cchat.com>

Gulf States Annual Winter Foray CANCELLED

As a result of damage to many Gulf States members' homes and the displacement of many members (including Dave and Pat Lewis, on both counts), this year's foray is cancelled. Pat is confident that the Winter Foray will return next year, so stay tuned.

You can find updated information from their Web site or from Pat (as of this writing, power had yet to be restored in her area) at <plewis@jas.net>.

Ninth Annual SOMA Winter Mushroom Camp

Sonoma County (near Occidental), California
January 14–16, 2006

Details in the September/October issue of THE MYCOPHILE.

To obtain a registration form or more information, visit our Web site: www.SOMAmushrooms.org; or call Rick Meininger, SOMA Winter Camp Co-Director at (707) 938-4106.

First Annual Oregon Truffle Festival

January 27–29, 2006

The west coast of North America from San Francisco Bay to Vancouver, BC, is home to the Oregon truffles, North America's greatest culinary delicacy. This area is known for its regional cuisine featuring world-class wines, exceptional seafood, and unparalleled artisan ingredients.

This coming January a group of dedicated culinary professionals and mycologists will present the consummate weekend of truffle hunts, winery tours, cooking demonstrations, lectures, and workshops on the Oregon truffles.

Highlights of this three-day event include a Saturday evening multicourse banquet prepared by Oregon's most celebrated chefs and featuring the Oregon white and Oregon black truffles with premium wine pairings. In addition, this newest northwest festival will offer the first North American Truffle Cultivation workshop taught by European specialists. This separate 12–15 hour course, along with the field events that are open to general ticket holders, represents a unique opportunity to experience truffles in their natural milieu from their hidden source in the soil to their aromatic grandeur on the table.

The festival is co-sponsored by the North American Truffle Society. For more information call or email Steven Remington at (541) 517-6707 or <steve@oregontrufflefestival.com>, or see the Web site at www.oregontrufflefestival.com.

Joint Annual Meeting: Mycological Society of America / Canadian Phytopathological Society / American Phytopathological Society

Québec City, Canada
July 29–August 2, 2006

This conference is still in the planning stages.

Eighth International Mycological Congress (IMC8)

Cairns, Australia
August 21–26, 2006

Details can be found on the Web site: www.sapmea.asn.au/imc8.

Scleroderma, cont. from page 1

Drawing with Scleroderma

room throughout eastern North America (McNight & McNight, Lincoff, Phillips). A similar species with a smooth skin, *S. michiganense,* also has a blue-black interior spore mass (see photo).

Jane Furchgott, an artist living in southwest Wisconsin, noticed the deep purple-black color of *Scleroderma* gleba (interior spore mass) and decided to try drawing with it. She cut the mushroom into quarters and whittled the gleba to a point.

Holding the pointed piece by the rind, she began to draw. The black color went onto the paper smoothly and easily, somewhat like soft charcoal or lithographic crayon do. The warm black color didn't smudge or smear, even when first applied. The tone could be varied by changing the pressure.

The mushroom's age makes a difference in the success of shaping the *Scleroderma* and of the resulting drawing. Young, firm specimens with the pebbled outer surface fully developed and the gleba dense and moist work the best; older ones lose their firmness and become punky and grey inside, no longer suitable for drawing. Some drawings will turn a sepia color over time. Full sunlight will fade them slightly.

Continued on page 14

Stamets Everywhere

I recently received a copy of Paul Stamets's latest book, *Mycelium Running: How Mushrooms Can Save the World,* and am impressed with what I've seen so far. I haven't finished reading it yet but hope to have a detailed review ready for the next issue of THE MYCOPHILE. However, I can tell you now that it is beautifully laid out and makes a convincing argument. Of course, we mycophiles already knew fungi can save—and have saved—the planet, right?

If one needs more convincing, whom better to consult than Paul Stamets? It seems he's been showing up everywhere of late, espousing the many uses of fungi. An article in *The Christian Science Monitor* late last year declared, "to some environmentalists, scientists, and major investors, Paul Stamets is the trippiest of profitable kings." The mycologist and founder of Fungi Perfecti, a family-owned mushroom business in Shelton, Washington, will quickly tell you that mushrooms restore health both on the personal and ecological level. To him, there's no end to what spores can do.

It seems there's no end to what *he* can do to promote the field of mycology. He's written books and numerous articles on the subject. Collaborations with public and private agencies from Batelle Industries to the National Institutes of Health have resulted in dozens of patents being filed. Stamets is involved with investigations into mushrooms and other fungi and their uses as antiviral and antibacterial agents, as well as key boosters to the human immune system.

Besides his work to benefit the human body, Stamets says he has cloned mycelia and mushrooms that can kill pests, absorb radioactive material, filter toxic wastes, and, according to an article in *Jane's Defense Weekly,* even degrade surrogates of deadly VX and sarin gas. Some of these studies I've described previously in the pages of THE MYCOPHILE; others I'll describe below.

Some of Stamets's research attempt to benefit the environment and make use of his past experience as a logger in the Pacific Northwest. For example, one study aims to stop silt runoff on logging roads by spreading bark and wood chips that have been coated with mycelia of local native fungal species. The mycelia's natural filtration properties stop the silt flow and prompt the regrowth of the topsoil. In another technique, which he calls "mycorestoration," Stamets uses fungi to filter out pathogens, silt, and chemicals from water (mycofiltration) and to denature toxic wastes. The low-tech devices—which often involve placing the fungi in straw, for example—can be placed around farms, watersheds, factories, and roads. Stamets also uses fungi to hurry the natural decomposition of logs on the forest floor and has devised a way to put spores in chainsaw oil so that when a logger cuts a tree, he is inoculating the cut log with wood rot fungi.

Besides the industrial sector, Stamets has some backers in the medical fields. Dr. Donald Abrams, a researcher at the University of California San Francisco School of Medicine, is collaborating with Stamets on a National Institutes of Health-funded trial to investigate the effects of the oyster mushroom in lowering cholesterol in people taking HIV therapies. The study is the first medical mushroom clinical study in the U.S.

Paul Stamets certainly has his backers. Still, others have always found him to be . . . well, a bit eccentric. Maybe even off-the-wall. He did, after all, conduct now famous research on psilocybin hallucinogenic mushrooms at Evergreen State College in the late 1970s. He wrote *Psilocybin Mushrooms of the World,* and he is keeping audiences and readers scratching their heads, whether it's discussing "fungal intelligence" or the ability to use spores to put life on other planets. In *Mycelium Running* Stamets writes, "The mycelium is an exposed sentient membrane, aware and responsive to changes in its environment. I especially feel this when I enter a forest after a rainfall. Interlacing mycelial membranes form, I believe, a complex neuron-like web that acts as a fungal collective consciousness."

But let's get back to his more down-to-earth revelations. An issue of *The New Scientist* late last year featured his latest and potentially greatest investigation—"mycopesticides." The journal praised his work for its innovation and promotion of environmental sustainability—something a lot of researchers are aiming for these days. In the development of a mycopesticide, Stamets made an important breakthrough in the use of the pre-sporulating stage of the naturally occurring fungus *Metarhizium anisopliae* to control social pest insects such as fire ants and termites. Past attempts to use the *Metarhyzium* fungus have focused on the spores of the fungus, also known to be toxic to pest insects. The difficulty is that the insects avoid the spores whenever they can, limiting the usefulness of spore-based bio-pesticides. The difference Stamets discovered is that before producing spores, the mycelium seems to produce a substance that serves as an attractant to the insects (therefore eliminating the need to spray onto or near the pests). The mycelium also has recruitment properties (the ants go tell others about their find) and then serves as a food to the insects. Foraging ants were found to carry the mycelium into their nest and present it to the queen for further distribution throughout the colony. Once spores emerged, the mycelium had already been widely distributed and ingested. The spores invaded the insects

and killed them within a matter of days. When the colony was eradicated, the stench of the spores remained and prevented recolonization. Stamets has received U.S. Patent #6,660,290 for this invention, and the product is now being marketed by Ben DuPont, an investor from the famous family. DuPont's company, Yet2.com, matches new technologies with bigger business partners.

At a conference in Bellingham, Washington, last year Stamets related the story of how he treated carpenter ants in his house with his newfound mycopesticide and they completely disappeared. He then gave his aunt some to use and the carpenter ants completely disappeared from her house as well. This is when he began to think that he was onto something. Of course, entomopathic fungi (that is, fungi who make their living by killing insects) have long been attractive to humans. Up until now, entomopathic fungi have always been used on insects in their conidial (spore) stage. A number of products and patents have been developed for such common entomopathic fungal genera as *Metarhizium, Beauveria,* and *Paecilomyces*—names that anyone working in biological control recognizes (and, we hope, the readers of "Fungi in the News"!). The problem has been that the conidial stage is highly repellent to insects, and is the form that until now has been used to dispense entomopathic fungi. What Stamets found was that the pre-conidial, hyphal stage of the fungus, which has long been ignored by mycologists because it wasn't active against the insects, is highly attractive to insects. Then, when the insect takes the mycelia to its colony, the mycelia sporulate in the warm, moist conditions of the colony and produce the insect-lethal form of itself.

Stamets told the packed audience how his aunt found the carpenter ant queen and her worker-ant minions in a swarming pile on the carpet after the bait fungal mycelia had been taken away by the ants. The colony had become so toxic that the ants abandoned it and brought the queen out into the open. After being flushed down the toilet, they haven't come back. Stamets believes that there will be numerous applications of this process in agriculture, and I would have to agree.

Bodies to be searched for mushrooms in the U.K. . . .
From the English newspaper *The Guardian* comes word of a new U.K. law that puts a "harmless" [their words—*Ed.*] fungus on a par with crack and heroin. Yep, psychoactive 'shrooms are getting a bad rap "across the pond." Thanks to Clause 21 of the new Drugs Act, it will be illegal to possess psychedelic mushrooms in their fresh state, and they will be classified as a Class A drug alongside heroin and crack. Clause 21 was rushed through by the last Labor government in what critics saw as a blatant attempt to appear tough on drugs. The law's detractors claim the legislation is flawed.

. . . while in Germany, a search for a body turns up mushrooms.
From Reuters in Berlin, one for the books! The odor given off by an unusually large fungus in Germany was so foul that it sparked a police hunt for a corpse. A spokesman for police in the eastern city of Dresden said that following weekend reports from local people about the smell, five officers and a sniffer dog went to investigate in a forest close to the German-Czech border. "Then they discovered this gigantic stinkhorn," he said, referring to the fetid-smelling, oddly shaped fungus with the Latin name *Phallus impudicus*. "Those things really do stink." Police called off the search and retreated from the malodorous fungus, which German media said was about eight inches long, much bigger than stinkhorns usually grow.

And now a wrap up from the journals—

Researchers at Penn State University led by Ruben Morawicki and Robert Beelman have published in the *Journal of Food Science* (70[5]: E367–71) a new technique to produce the chemicals 1-octen-3-ol and 10-oxo-trans-8-decenoic acid in industrial-size large batches. What's the big deal with the above, difficult-to-pronounce chemicals? These happen to be the main flavor and odor components of fresh mushrooms (well, button and portabella mushrooms, anyway). Think of it as mushroom flavor without all the smelly compost!

◆

"A human fungicide . . . for plants?" is the title of an article by David Wedge in the latest issue of *Agricultural Research* (53[9]: 23). It seems that a naturally occurring compound called sampangine, patented in 1990 to treat human fungal infections, has been patented again for another use. It and similar related compounds may have use as low-toxicity, broad-spectrum controls of fungal plant pathogens that threaten agriculture. Sampangine-based compounds have been shown to control fungi such as *Botrytis cinerea,* which causes gray mold on tomatoes; *Colletotrichum fragariae,* which causes anthracnose crown rot and wilt in strawberry plants; and *Fusarium oxysporum,* which causes vascular wilt in crops like potatoes, sugarcane, and many ornamentals.

◆

From the pages of the Mycological Society of America's journal *Mycologia* comes an article by members of the Plant Pathology Department at Penn State University (my old stomping grounds). József Geml, Donald Davis, and David Geiser have published an interesting article on the "Systematics of the genus *Sphaerobolus* based on molecular and morphological data, with the description of *Sphaerobolus ingoldii* sp. nov." They state that despite

Continued on page 6

Mushroom
The Journal of Wild Mushrooming

Other magazines urge you to subscribe, but ***we invite you to join friends on what we call "printed forays"!***

For 20 years, *Mushroom the Journal* has provided information of value to those who like to hunt, name, cook, study and photograph wild mushrooms. We've answered —

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- Should you worry about violence from commercial pickers?
- Can you do more with choice edibles than toss them in a sauté pan with butter?
- Can you grow your own truffles? Train your own truffle hound?
- Can you subscribe to the ***world's best mushroom magazine*** and have your satisfaction guaranteed? (You certainly can guess that answer—and yes, you can also train the dog.)

We're proud of the job we do of reviewing books of interest to the amateur mycologist. Before you buy, you'll know whether you should. Think we're kidding about "joining" rather than "subscribing"? Our Letters column lets you speak out, or contact others to seek that special book or sell that historic mushroom basket.

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Fungi in the News, continued from page 5

mycologists' fascination with its unique spore-dispersal mechanism, systematic studies of the genus *Sphaerobolus* have received little attention—in recent years, anyway. Some of the original pioneers of mycology, including Buller, studied this fascinating group. Micheli first documented the fungus nearly 300 years ago.

These tiny fungi are known as the "artillery fungi," "cannon fungi," or "shotgun fungi" for their amazing ability to blast spores (contained in a 1-mm-in-diameter packet called a gleba or peridiole) great distances. [See illustration on page 15.] Incidentally, glebae contain many spores of two types: sexual basidiospores as well as asexual gemmae. Glebae are shot towards bright light and can travel up to six meters. True to their name, the force of the spore ejection even produces an audible sound! In recent years the artillery fungus has become a source of distress to homeowners, landscape mulch producers (the fungus typically grows on wood mulch), and insurance companies due to the strong adhesion of the discharged glebae to artificial surfaces including house siding, windows, and cars (which can become well covered on one side in as little time as it takes to pop into the dentist's office—so be wary of parking near mulched "islands" in parking lots!).

In their previous work, multiple gene genealogies indicated the existence of three divergent lineages in the genus *Sphaerobolus,* each representing a phylogenetic species. Macro- and micromorphological analyses of colony and fruit-body characters presented in this latest work confirmed that three phylogenetic species correspond to two known species, *S. iowensis* and *S. stellatus,* and a newly discovered species. In addition, an expanded gene genealogical analysis is presented for the three species. The new species, named *Sphaerobolus ingoldii* Geml, Davis et Geiser, is described based on both molecular and morphological data. In addition, while *S. iowensis* previously had been reported in only two localities, they found that it is as common as or more common than *S. stellatus* in North America. Despite the considerable amount of DNA polymorhism found in all species, nested clade analyses of *S. iowensis* and *S. stellatus* indicated little phylogeographic structure in either species, perhaps due to heavy movement mediated by human activities.

◆

In a recent issue of the *Journal of Heredity* (96[4]: 396–403) Dalgleish and Jacobson have published "A first assessment of genetic variation among *Morchella esculenta* populations." They discuss how habitat loss and fragmentation have serious consequences for species diversity as well as genetic diversity within a species. As the most sought-after culinary fungus in the Midwest United States, morels (*Morchella esculenta* and related species) demand the attention of conservationists interested in preserving biological and genetic

diversity. According to the authors, little is known about the natural history of *M. esculenta*, which is critical information for understanding population dynamics as well as the impacts of habitat fragmentation and harvesting. Using a technique called random amplified polymorphic DNA-polymerase chain reaction (RAPD-PCR), a technique that has been successfully used to examine intrapopulation structure and detect clonal populations in numerous fungi, they found substantially higher levels of genetic polymorphism among 57 fruiting bodies than has been previously reported. Though laboratory studies indicate that the inbreeding potential for this fungus is high, the researchers found little evidence for inbreeding, with only two pairs of the randomly chosen isolates having identical genotypes at the 34 loci examined. This work highlights the importance of further attempts to resolve important aspects of the morel life cycle regarding heterokaryosis and inbreeding potential.

◆

Whatever became of the fungus-caused amphibian die-offs around the globe? You may recall that a tiny primitive fungus called a chytrid was blamed for many of the episodes. But is the fungus the sole culprit? Or are other factors—along with the chytrid—to blame? Well, pick up the October issue of the journal *Conservation Biology* and find several articles on the latest findings. "Conservation focus: Amphibian declines and chytridiomycosis, Subtitle: Inconclusiveness of chytridiomycosis as the agent in widespread frog declines" is the title of an article (19[5]: 1421–30) by Hamish MacCallum. Another, by Woodhams and Alford (19[5]: 1449–59) is "Ecology of chytridiomycosis in rainforest stream from assemblages of tropical Queensland." The article by Ouellet, et al. (19[5]: 1431–46) is probably of greatest interest to us in North America. Titled "Historical evidence of widespread chytrid infection in North America amphibian populations," the study shows that emerging infectious diseases may be contributing to the global decline of amphibian populations. In particular, chytridiomycosis, a cutaneous fungal infection of amphibians caused by the chytrid *Batrachochytrium dendrobatidis*, gained attention in the 1990s as an apparently new pathogen. This fungus has been implicated as the causative agent of widespread mortalities among wild amphibians in geographically disparate parts of the world. To investigate the global distribution, historical occurrence, and infectiousness of this pathogen, the researchers examined 3371 postmetamorphic and adult amphibians collected between 1895 and 2001 from 25 countries for the presence of chytrid fungi in the epidermis. Cutaneous chytrid infection was diagnosed in 383 of 2931 (13.1%) specimens of 12 common amphibian species from five Canadian provinces and seven American states, including 30 of 69 locations examined in the St. Lawrence River Valley of Quebec. Chytrids were observed in 7.0% (46/655) of the adults collected in the 1960s, the earliest cases being two green frogs (*Rana clamitans*) collected in 1961 from Saint-Pierre-de-Wakefield, Quebec. In recent studies, morbidity and mortality attributable to chytridiomycosis were not observed in infected amphibians from Québec despite a 17.8% (302/1698) prevalence of chytrid infection during the period 1990–2001. The prevalence of infection during this latter period was not statistically different when compared with the period 1960–69. Epidermal chytrid infections were not observed in 440 amphibians examined from 23 other countries. In light of the fact that infection by *B. dendrobatidis* is widely distributed and apparently enzootic in seemingly healthy amphibians from eastern North America, lethal outbreaks of chytridiomycosis among amphibian populations appear to have complex causes and may be the result of underlying predisposing factors.

◆

News of fungi is to be found even in the pages of the August issue of *Good Housekeeping* 241[2]: 42). Here, facts about fungi are aimed mostly at neophytes. Expect valuable nuggets like, "Humid places are fungus favorites, which helps explain why sweaty shoes and socks make toes more susceptible than fingers."

Recommended Reading

I just picked up a copy of *The Practical Mushroom Encyclopedia* by Peter Jordan and Steven Wheeler (London: Anness Publishing Limited, 2005). The copyright page notes that this book previously was published as *The Ultimate Mushroom Book*, which I cannot recall. However, I can tell you that the current book is basically Steven Wheeler's earlier *The Complete Mushroom Cookbook* with some additional photos and information added to the beginning. Otherwise, the photos and recipes seem identical. Nevertheless, I bought a copy as I'd found it for a terrific price at the bookstore, and it really is a very nice book. The photos are excellent, as are the recipes (many have been used in the "Culinary Corner" in the pages of *The Mycophile*). The information on identification and habitat is adequate, and they do a good job of describing preparation and preservation of many types of mushrooms. Overall, if you can find it, I would highly recommend this book as an addition to your collection, especially if you do not have the above mentioned books.

◆

Regular readers of "Fungi in the News" will recall that I'm always asking for suggestions of books to read, especially works of fiction. Well, here's something different—really different. I recently read *Thin Line Between* (Cold Spring Harbor, NY: Cold Spring Press, 2005), the first book by the author M. A. C. Petty. The

Continued on page 14

2005 NAMA Digital Photo Contest Winners

Documentary

First Place (tie):
Xanthoconium purpurea by Steve Rock ..... A (page 15)
Collybia dryophila with *Christiansenia mycetophilia* by David Work ..... Page 1, bottom
Second Place:
Boletus sensibilis by Steve Rock ..... B (page 15)
Third Place:
Gomphus kauffmanii by Rich Mably C

Honorable Mention: Mycelia by Rich Mably; *Pleurotus ostreatus* by Judy Kaplan; *Otidea leporina* by Rich Mably; Cup Fungus by David Dennis; *Bondarzewia berkeleyi* by Steve Rock; *Omphalotus olearius* by David Work; *Cantharellus xanthopus* by Rebecca Plischke; *Mutinus elegans* by David Work

Pictorial

First Place:
Light and Delicate by Rich Mably ..... D
Second Place:
Boletellus russellii by David Work ..... E
Third Place (tie):
Ganoderma tsugae by David Work ..... F
Laetiporus cincinnatus by David Work ..... G

Pictorial Honorable Mention Awards:
Morning Has Broken—*Geastrum saccatum* by Rich Mably; Chastity by Chris Ribet; Spindle-shaped Coral by David Dennis; Stalked Hairy Cups by David Dennis

Judges' Option Commendations

Puffball Moon by Rich Mably ..... H
Clitocybe atroviridis by Rich Mably ..... J
All You Need Is Gin by David Dennis ..... K

F

G

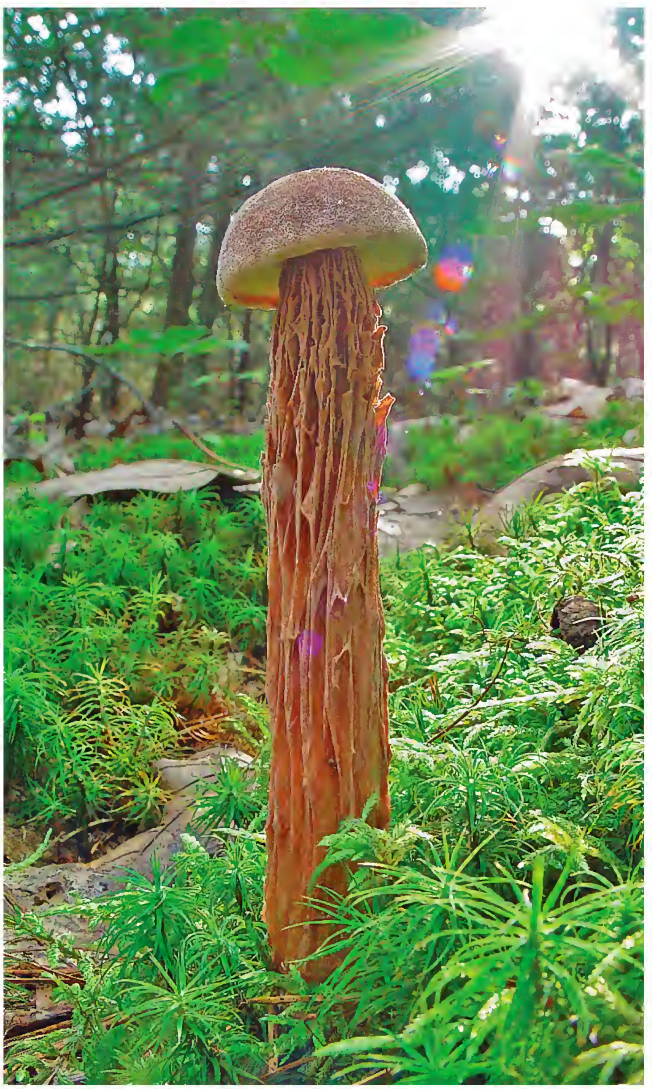
D

C

J

H

K



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Genus Names: Mind Your Ps and Cs

by Bob Sommer

I noticed something odd when I scanned my mushroom watercolors. I had organized the paintings alphabetically by genus. Scanning the C and L names dragged on interminably, while I was able to skip J and K completely. I had painted one X genus (*Xylaria obovata*) but none starting with U, W, Y, or Z. Either I had been unwittingly ignoring mushrooms at the alphabet end when making my identification (their pictures appearing too late in my field guides?) or there was something unbalanced in mushroom nomenclature.

I examined Arora's index of technical names. This seemed a good source book as common names are placed in a separate index. I measured in centimeters the column size devoted to genera starting with each letter of the alphabet. My impression of interminable scanning of C names was confirmed. The column length in Arora's index devoted to genera starting with C exceeded that devoted to 17 other letters of the alphabet combined!

To see if there were something odd about Arora's index (perhaps as an A person, he had less interest in the late end of the alphabet), I measured column length of technical names in Lange and Hora's *A Guide to Mushrooms and Toadstools.* I picked this book because it was published 25 years earlier than Arora and was written by two European professional mycologists. Despite all the changes that had occurred in fungus taxonomy in the intervening 25 years, the rank order of index space Lange and Hora devoted to each letter was virtually identical to Arora. The correlation coefficient between index space by letter in the two field guides was +.97 (+1.0 is perfect correlation).

What can explain this quirk in nomenclature; why would taxonomists be more likely to choose C names over those starting with B and A? Perhaps the answer lies in self-promotion, with taxonomists naming mushrooms after themselves and *their names* more likely to start with C and P than with other letters. To explore this possibility, I examined Lincoff's *Index to Author's of Fungi.* I counted mycologists' names by letter. To my surprise, the two most common letters of mycologists' names were my initials, B and S. There was no significant correlation between the rank order of the first letter of mycologists' last names and the amount of index space devoted to genera in Arora and Lange & Hora. If taxonomists were naming mushrooms after themselves, they were doing it by species or variety and not by genus.

The next item I wanted to check was Latin, the language of Linnaean taxonomy. Perhaps Latin contained a preference for some letters over others. I had studied Latin in high school without knowing any bias existed. I counted the number of pages devoted to each letter in the Latin section of *The New College Dictionary of Latin and English.* The two letters with the most frequent entries were P and C, which happened to be the two letters with the most space in the indexes of Arora and Lange and Hora. Mystery solved. Mushroom taxonomists tend to choose technical names according to word frequencies in the Latin language. Letters most often used to start Latin words are also most likely to become genus names for fungi.

Curious as to whether this might be a general pattern in Linnaean taxonomy, I visited the library in search of natural science books in other fields containing lists of technical names organized by genus rather than by common name or family. I obtained suitable books with technical names listed by genus for plants,

Table 1

Intercorrelation of first letters of genus names in eight natural history books

Subject Area	Fungus (Arora)	Fungus (L&H)	Flowers	"Lower Orgs."	Lichen	Plants	Birds	Shells
Fungus (A)	---	.97	.84	.89	.77	.89	.86	.87
Fungus (L&H)		---	.77	.82	.83	.81	.79	.83
Flowers			---	.90	.70	.86	.92	.77
"Lower Organisms"				---	.68	.95	.94	.88
Lichen					---	.59	.72	.64
Plants						---	.93	.89
Birds							---	.89

Table 2

First letter of genus names in eight natural history books: Average percentage use among all 26 letters

Letter	Percent	Letter	Percent
C	17.7	O	2.7
P	14.4	N	2.0
A	8.4	V	1.8
L	7.4	I	1.5
S	6.9	F	1.3
T	5.4	U	1.0
M	5.3	X	0.7
H	4.6	Z	0.5
R	4.5	J	0.3
G	3.6	K	0.2
B	3.3	W	0.1
E	3.2	Q	0.1
D	2.8	Y	0.0

Mushroom Dyes in Denmark

by Dorothy Beebee

I'm just back from the 12th International Fungi & Fibre Symposium, held in Haslev, Denmark. This is where fiber artists from around the world gather to share, teach, and exchange ideas about mushroom dyes, paper and pigment. Fortunately, Miriam Rice was able to attend this time, thanks to the efforts of her daughter Felicia. What a joy it was to see old friends again and share with them the new discoveries in the fields of fungi and fiber!

On the schedule were workshops in mushroom dyeing with the following fungi, which had been collected throughout Scandinavia and dried in preparation for the workshops.

Imagine a ring of colored wool yarns:

Cortinarius sanguineus: reds, reds, reds!

**Cortinarius semi-sanguineus*: orange reds

**Cortinarius malicoria:* apricot/peach tones

*(?)*Sarcodon squamosus* - blues

Hapalopilus nidulans – lovely lavenders and purples

**Phaeolus schweinitzii* – lemon yellow

**Pisolithus azhirus (=tinctorius)* – rusty browns

**Tapinella (=Paxillus) atrotomentosus* - brownish purples

*The asterisked items were found here in Sonoma County.

Many of the dye workshops used tin and copper mordants, as well as alum. Chrome was NOT used. Changes in pH were accomplished by using ammonia rather the washing soda that Miriam Rice recommends. Although Miriam did not teach any classes this time, Felicia and I took turns wheeling her around into all the workshops that we could (the Symposium provided her with a wheelchair for easy access) so that she could observe, participate, and advise as needed.

In addition to mushroom (and lichen) dye workshops there were classes in paper bowl making, needle felting, Viking knot-less netting, and Scandinavian band weaving techniques, broomstick crochet, tapestry weaving, felt making, and mushroom illustration. Forays into the local verdant beech wood forests provided a wonderful collection of local fungi for display and taxonomy classes.

We enjoyed a splendid exhibition of mushroom dyed textile arts (I took lots of slides!) and a foray/expedition to the lovely white limestone cliffs of Mons Klimt by the incredibly blue sea, and churches built in 900 and 1000 A.D. with exquisitely handpainted interiors. We passed giant modern windmills (15% of Denmark's electricity is generated by these windmills) and amazingly tidy country with no roadside litter—and bicycles have the same rights of way as cars.

Lectures in the evenings included the subjects of the use UV light in identifying species, pH in altering color in dyes, the tapestries woven for Danish Queen Margarethe (we later saw some of these amazing tapestries in Copenhagen), and a presentation by Flemming Rune, the President of the Danish Mycological Society, which is celebrating its 100-year anniversary this year and has over 1000 members! Last April Flemming was here for a visit to see Miriam and me. He was at the Fourth International Fungi & Fibre Symposium which was held in Denmark *20 years ago,* and many of the folks who attended then were here also in Haslev, a little older and a little more silvery.

And then there was the night when they tried to teach us Danish folk dances after a very large banquet dinner that included much imbibing!

Continued on page 14

Names, continued from preceding page

birds, wildflowers, shells, lichen, and lower organisms [the author's term]. The field guides were very consistent, with J, K, Q, V, W, X, Y, and Z genera poorly represented. Table 1 shows the correlation coefficients between space devoted to words starting with each letter in the technical indexes of the eight field guides. All intercorrelations are statistically reliable.

Table 2 shows by the percentage of space in the technical index of each field guides devoted to genus names by letter. Usage of each letter was measured in each book index and then calculated as a percentage of total space in the index, and these percentages were averaged across all eight books. This table confirms the relative popularity of P and C names in these diverse fields of natural science, and the relative neglect of letters at the end of the alphabet. P and C genera together exceed those starting with 18 other letters of the alphabet combined.

It is clear the variation in genus names is more than an artifact of indexing, but it represents a linguistic bias in contemporary taxonomy. There is some practical value in having this information. If you cannot identify a specimen and are forced to guess (perhaps you have brought a neophyte on a first outing and don't want to lose face), the odds favor a genus beginning in C or P. No matter how tempting, don't even think *Jafnea* or *Kuehneromyces*; there are just too few mushroom names beginning with J and K for either to be a likely possibility. Go with the odds in identifying unknown specimens. You may miss occasionally (who doesn't?), but over the long haul, the odds are in your favor. Statistically, the house always wins, and in this case the house is Linnaean taxonomy.

Four Mushroomy Songs by Larry Evans

LBM Reggae

I'm a little brown fungus with a fibery cap
I'm Dangerous

My name's Inocybe, but don't mess with me
I'm dangerous

There are lots of us and we seem innocuous but
We're dangerous

And although we don't look mean
We are full of muscarine
We're dangerous

They call us LBMs and they shake they head
They can't identify us

We are anonymous and yet we know us
We're dangerous!

Everybody's Everythang Boogie

Everything has its fungus
That eats it when its gone
Sucking up the nutrients
So Life can carry on.

Every tree has its fungus
That inhabits its roots
Spores that travel with the seeds
And catch the sprouting shoots

Everyone has a fungus
Every one should know
How the hyphae interact
With your barley or your toe

Everything has a fungus
If you know or not
Growing on your cucumber
Or maybe on your (crotch? Snot? Or maybe not?)

Everyone eats fungus
In pills of vitamin B
Even if you don't eat fungus
You eat it anywayeee

Chanterelle Me Baby

Oh Baby can't you tell
I yam a chan-ter-elle
I got the wrink-wrink-wrinkly gills

I may be yellow or white
I never glow at night
But I'm a real gourmet's delight

You may like me or not
I smell like apricot
And I'm the best thing in your stewpot

My spores blow wild in the breeze
But we can't grow where we please
I like to grow with big big big old trees

I am a handsome mushroom
They call the Trumpet of Doom

Fairy Ring Marasmius

Fairy ring Marasmius
growing in the pasture now
where its neighbors likely are
the horsie and the cow.

Chorus: Fairy ring ma-raz-mee-us
growing on the ground
sometimes in a straight line
but it's always going 'round
and round
and round

Fairy ring Marasmius
green circles in the grass
little elven soldiers helmets
slowly marching past!

Chorus

Fairy ring Marasmius
You pick your friends with care
Make sure you see some weeds
or clover growing there

Chorus

Continued on next page

The Mushroom Is the Elf of Plants

The Mushroom is the Elf of Plants —
At Evening, it is not —
At Morning, in a Truffled Hut
It stop upon a Spot

As if it tarried always
And yet its whole Career
Is shorter than a Snake's Delay
And fleeter than a Tare —

'Tis Vegetation's Juggler —
The Germ of Alibi —
Doth like a Bubble antedate
And like a Bubble, hie —

I feel as if the Grass was pleased
To have it intermit —
This surreptitious scion
Of Summer's circumspect.

Had Nature any supple Face
Or could she one contemn —
Had Nature an Apostate —
That Mushroom — it is Him!

—Emily Dickenson (1830–86)

In the Mushroom Meadows

Sun on the dewy grasslands where late the frost hath shone,
And lo, what elfin cities are these we come upon!
What pigmy domes and thatches, what Arab caravan,
What downy-roofed pagodas that have known no touch of man!
Are these the oldtime meadows? Yes, the wildgrape scents the air;
The breath of ripened orchards still is incense everywhere;
Yet do these dawn-encampments bring the lurking memories
Of Egypt and of Burma and the shores of China Seas.

—Thomas Walsh (1875–1928)

Mushrooms

Overnight, very
Whitely, discreetly,
Very quietly

Our toes, our noses
Take hold on the loam,
Acquire the air.

Nobody sees us,
Stops us, betrays us;
The small grains make room.

Soft fists insist on
Heaving the needles,
The leafy bedding,

Even the paving
Our hammers, our rams,
Earless and eyeless,

Perfectly voiceless,
Widen the crannies,
Shoulder through holes. We

Diet on water,
On crumbs of shadow,
Bland-mannered, asking

Little or nothing.
So many of us!
So many of us!

We are shelves, we are
Tables, we are meek,
We are edible,

Nudgers and shovers
In spite of ourselves.
Our kind multiplies:

We shall by morning
Inherit the earth.
Our foot's in the door.

—Sylvia Plath (1932–63)

(**Fairy Ring Marasmius,** continued)

Fairy ring Marasmius
tastier than most
try them in a chicken sauce
or on your buttered toast.

Chorus

Fairy ring Marasmius,
the one they call Scotch Bonnet
but are you really REALLY sure
no doggie wee-weed on it?

Chorus

Continued on page 14

Fungi in the News continued from page 7

genre of this story is hard to categorize: somewhere between science fiction and fantasy ("dark fantasy" is what the author told me). Only a few pages into it, I was wondering if it really was for me, as I don't normally read works of fantasy. However, a few more pages and I was totally hooked. A few more chapters and I couldn't put it down. The story is the first of a quartet of books; a new one will be released annually. So, unfortunately, I have a bit of a wait until the sequel hits the shelves.

Here's a brief description of *Thin Line Between:* Alice Waterston is finally getting her life back together and her career on track after a stressful divorce. As curator at a large history museum, she has succeeded in booking an international exhibit of Australian Aboriginal art, an important event for her personally as well as for her budding career. She feels a special tie to Australia because her father, who died shortly before she was born, was an Australian artist. Then shocking accidents begin occurring around the exhibit. . . .

There's another twist to the book that I found particularly enjoyable: Alice begins writing a short story (that gets longer and longer as time passes) for the enjoyment of her daughter Margaret and herself. The story centers on an urban legend but pulls in a number of real characters from the region. Before long, the fiction of the story becomes real in their psyches and dreams. Are they merely dreams, or real after all? As Alice and her daughter attempt to unravel this mystery, they nearly come unraveled themselves.

Alice's boyfriend Nik isn't sure what to make of her descriptions of the daily horrors. Nik, an expert mycologist, provides some excellent mushroomy diversions from theunfolding psychodrama. But don't buy the book with hopes of mycological tales unfolding. This riveting story will grab onto you and make you forget all about mushrooms. Or anything else, for that matter.

I recently caught up with the author and discussed her new book, mythology, Australian Aboriginal art, and even mushrooms! Anne Petty is a writer living in Florida. She is a former instructor at Florida State University, where she taught creative writing. (Who better to teach such a course!) Her areas of research expertise include mythologies and J. R. R. Tolkien. Another of her many interests is Australian Aboriginal art and the history of that art. From the central character of her book, Alice,we learn much about how the art has been used to explain legends down through the ages in the Aboriginal communities.

Many of you may actually know the author, as she is the wife of NAMA member Bill Petty, who has given many lectures on southeastern mushrooms and has a tremendous slide collection on his Florida Fungi Web site. I wondered if her husband or daughter served as an inspiration for the characters in the story. Nik, from

Continued on next page

Dyes, continued from page 11

It was decided that the 13th International Fungi and Fibre Symposium is going to be held in Mendocino, CA, in January 2008 (after SOMA Camp), and we are looking forward to the participation of SOMA in many of the mycological events to be offered at this international gathering of mushroom dye fiber artists to be hosted by the USA! Stay tuned and watch for further information at www.sonic.net/dbeebee/IMDI_new/communication .html.

[*Dorothy Beebee is a member of NAMA's Dyeing and Paper Making Committee. She reports that a similar article will be appearing in an upcoming issue of* SOMA News.]

Larry Evans's Mushroomy Songs,
continued from page 12

The songs are from the CD *Fungal Boogie* by Zoe Wood and Larry Evans, which features 13 songs about fungi, edible and otherwise, in a range of musical styles that includes blues, calypso, polka, and rockabilly. Zoe's guitar is accompanied by percussion, bass, cello, and even harpsichord as she sings about Agaricus, Amanita, Psathyrella, Naematoloma, and other remarkable aspects of the Fungal Jungle.

To receive *Fungal Boogie* by mail send $15 check or money order payable to Larry Evans at "Fungal Boogie," P.O. Box 7306, Missoula, MT 59807. You can also listen to tracks from *Fungal Boogie* at the Fungal Jungal Web site: www.fungaljungal.org/. This is the Internet home of the Western Montana Mycological Association, and on it you can find all sorts of interesting things about western fungi.

Fungal Boogie was reviewed in The Mycophile (45:4, Jul/Aug 2004). Larry's songs are printed here with his permission.

Scleroderma as an Artist's Medium, cont. from page 3

Everyone who tries drawing with *Scleroderma* says, "This is fun!"

Perhaps it should not be surprising to discover this potential for art materials in a member of the family Sclerodermataceae. A member of the same family and therefore a not-too-distant relative of *S. citrinum* is *Pisolithus tinctorum.* As the species name would indicate, this mushroom has been used for dying purposes. One common name for this fungus is dye-maker's false puffball; it is reputedly used in making a rich golden-brown to black dye (see Lincoff, pg. 839).

Bibliography

Lincoff, Gary H. *The Audubon Society field Guide to North American Mushrooms.* New York: Knopf, 1981.

Photo Contest Winners, continued from pages 8–9

These photos tied for First Place in the Documentary Division.

A *Xanthoconium purpurea* by Steve Rock

B *Boletus sensibilis* by Steve Rock

Scleroderma as an Artist's Medium, continued

McKnight, Kent H., and Vera B. McNight. *A Field Guide to Mushrooms: North America.* Boston: Houghton Mifflin Co., 1987.

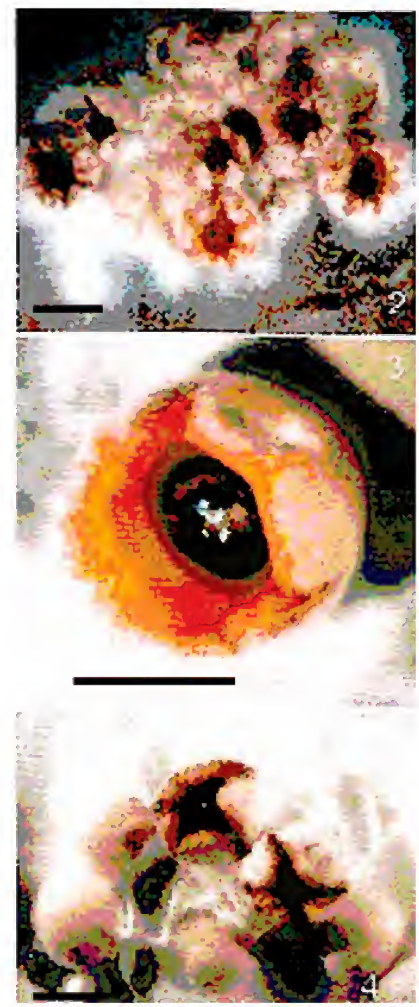
Phillips, Roger. *Mushrooms of North America.* Boston: Little, Brown and Company, 1991.

Photos courtesy of David Kopitzke.

Fungi in the News, continued from page 14

the story, "is completely fictional," Anne says, but acknowledges that Bill provided the mushroom taxonomy used in *Thin Line Between,* and she said that while Alice's daughter Margaret does share some traits of her own daughter, much of Margaret's character is based on the author herself. We discussed at length her great interest in history and how she once worked at the State Museum of Florida History in Tallahassee. Anne described how the museum used to be a jail, and if that's not spooky enough, she was located in the basement. With an imagination like hers, there's no telling what sorts of daydreams went on in her mind in those days!

Ilustration of artillery fungi (see text, column 2, page 6):



Mature basidiocarps of Sphaerobolus *species; black bar = 1 mm in length*

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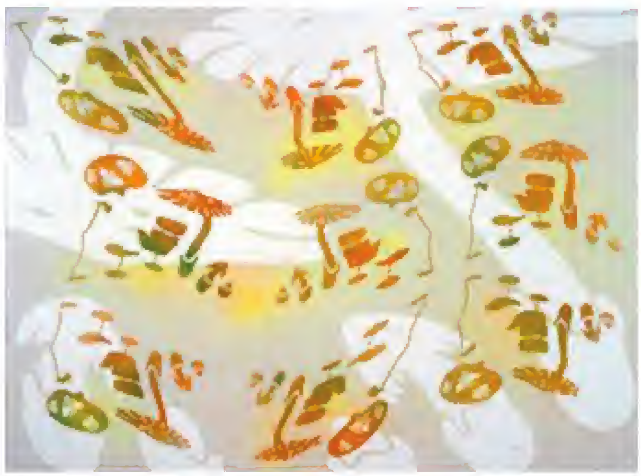

Graystone with Insects & Fungi

Enamel/spray paint on upholstery fabric
32" x 42"

Painted in 2001 by Nancy Mladenoff. For more information on Nancy's work, see July/August issue of THE MYCOPHILE.